



EUROPEAN
COMMISSION



Community research
Research DG
H2 Surface Transport

SMARTRAIL

Smart Maintenance Analysis and Remediation of RAIL infrastructure SMARTRAIL Overview



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SEVENTH FRAMEWORK
PROGRAMME

Community research
Research DG
H2 Surface Transport



SMART Rail Consortium

No	Name	Short name	Country
1	UNIVERSITY COLLEGE DUBLIN, NATIONAL UNIVERSITY OF IRELAND, DUBLIN	NUID UCD	Ireland
2	SLOVENSKE ZELEZNICE DOO	SŽ	Slovenia
3	FORUM DES LABORATOIRES NATIONAUX EUROPEENS DE RECHERCHE ROUTIERE	FEHRL	Belgium
4	EURNEX e. V.	EURNEX	Germany
5	INSTITUT IGH DD	IGH	Croatia
6	ZAVOD ZA GRADBENISTVO SLOVENIJE	ZAG	Slovenia
7	ROUGHAN & O'DONOVAN LIMITED	RODIS	Ireland
8	ADAPTRONICA ZOO SP	Adaptronica	Poland
9	TECHNISCHE UNIVERSITAET MUENCHEN	TUM	Germany
10	INSTYTUT KOLEJNICTWA	IK	Poland
11	THE UNIVERSITY OF NOTTINGHAM	UNOTT	United Kingdom
12	HZ INFRASTRUKTURA D.O.O.	HZ	Croatia
13	IARNROD EIREANN	IE	Ireland
14	DE MONTFORT UNIVERSITY	DMU	United Kingdom

15 University of Twente

UoT

Holland

SMART Rail - Background

- In the period 1990 to 2008 deaths on the roads of the EU 27 reduced from 76,000 to 39,000 per annum
- In the same time period 1,814 fatalities in total occurred on the rail network where 82,000 million kilometres of journeys took place
- Whilst rail is relatively safe, failures can have huge consequences





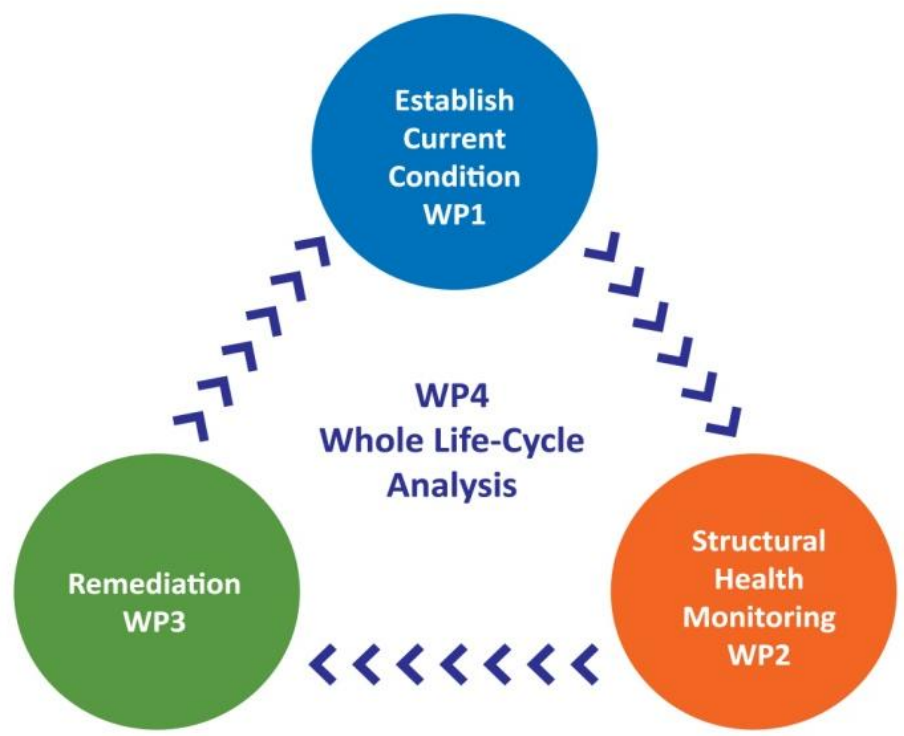
SMART Rail - Concept



In order to achieve the SMART Rail concept, we require the following critical and interdependent elements:

- An embedded sensor network
- State of the art Structural Health Monitoring (SHM)
- A suite of low-cost remediation measures that are region-specific

SMART Rail - Concept



Technical Perspective:

- (i) Monitoring establishes current condition
- (ii) SHM defines reliability/safety
- (iii) Remediation required?
- (iv) LCA quantifies cost and benefit

SMART Rail Organisation

